

WHAT IS CLAIMED IS:

1. A controller for cooperating with a vessel's existing horn to automatically generate sound navigational signals, said  
5 controller comprising:

an installation-type detector for determining a controller installation type;

10 a user interface with a mode selector having one or more mode settings; and

a microprocessor for communicating with said mode selector and said horn to facilitate the selective control of said horn.

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2. The controller of claim 1, wherein said controller is activated by said mode selector.

3. The controller of claim 2, wherein said installation-type detector determines said controller installation type when  
20 said controller is activated.

4. The controller of claim 3, wherein said installation type is for parallel signaling for blast pattern selection.

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5. The controller of claim 4, wherein said microprocessor is activated by said controller when said mode selector is set in one of said one or more mode settings.

30 6. The controller of claim 5, wherein said microprocessor determines which of said one or more mode settings has been

selected.

7. The controller of claim 1, wherein said controller is activated by a vessel's existing controls.

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8. The controller of claim 7, wherein said installation-type detector determines said controller installation type when said controller is activated.

10 9. The controller of claim 8, wherein said installation type is for serial signaling for blast pattern selection.

10. The controller of claim 9, wherein said microprocessor is activated by said controller when said mode selector is set  
15 in one of said one or more mode settings.

11. The controller of claim 10, wherein said microprocessor cooperates with said vessel's existing controls to determine which of said one or more mode settings has been  
20 selected.

12. The controller of claim 1, wherein said controller cooperates with a timing for ensuring said sound navigational signals are properly timed and/or spaced.  
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13. The controller of claim 12, wherein said timing system is a separate component separate from said microprocessor.

14. The controller of claim 12, wherein said timing system  
30 is part of said microprocessor.

15. The controller of claim 1, wherein said controller is programmable to support a variety of different mode selections and/or any combinations thereof.

5        16. The controller of claim 1, wherein said random number generator is part of said microprocessor.

17. The controller of claim 1, wherein said random number generator is a computer software program for said micro  
10 processor.

18. The controller of claim 1, further comprising a random number generator.

15        19. The controller of claim 18, wherein said random number generator adds a random or a pseudo random time length to a base period of time between said sound navigational signals.

20        20. The controller of claim 19, wherein said added random or pseudo random time length provides anti-synchronization for preventing any overlapping of sound navigational signals between different vessels.

21. The controller of claim 19, wherein said random number  
25 generator operates independent of any innate variability associated with different components.

22. The controller of claim 19, wherein said random or pseudo random time length is in a range of 0 seconds to 120  
30 seconds less said base period of time.

23. The controller of claim 22, wherein the sum of said pseudo random time length and said base period does not exceed 120 seconds.

5        24. The controller of claim 1, wherein said controller has a power/sail type detecting circuit.

25. The controller of claim 24, wherein said power/sail type detecting circuit is selectively connectable to a power  
10 source+ for a vessel under power and/or a power source- for a vessel under sail.

26. The controller of claim 25, wherein said controller has a miswire protection circuit for protecting said controller  
15 from improper installation.

27. The controller of claim 1, wherein said microprocessor has memory to store controller software.

20        28. The controller of claim 1, wherein said controller has a brownout protection circuit for causing a reset signal of said microprocessor to be asserted when the power supply falls below a predetermined level.

25        29. The controller of claim 1, wherein said controller has a relay driver circuit for controlling a relay electrically connected to said existing navigational controls.

30        30. The controller of claim 1, wherein said controller has a pre-signal warning feature.

31. The controller of claim 30, wherein said pre-signal warning is an audible signal.

32. The controller of claim 30, wherein said pre-signal  
5 warning is a visual signal.

33. The controller of claim 24, wherein said power/sail type detecting circuit is monitored by said microprocessor to determine any change in status.

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34. The controller of claim 1, wherein said controller has an automated distress signal feature.

35. The controller of claim 34, wherein said distress  
15 signal feature has a predetermined signal pattern.

36. The controller of claim 35, wherein said signal pattern is the Morse code SOS pattern.

20 37. The controller of claim 35, wherein said signal pattern has a cycle or frequency step down feature.

38. The controller of claim 1, wherein said microprocessor can reply with an acknowledgement to interaction detected from  
25 an operator.

40. The controller of claim 1, wherein a vessel's existing controls are used to activate said controller and to select one or more signal settings.

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41. A method for automatically generating sound

navigational signals comprising the steps of:

providing a horn or a signaling device, said signaling device having a controller having an installation-type detector  
5 for determining a controller installation type, a user interface with a mode selector having one or more mode settings, and a microprocessor for communicating with said mode selector and said horn to facilitate the selective control of said horn to generate sound navigational signals;

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activating said controller via said mode selector of said user interface;

initializing said microprocessor via said mode selector;

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determining controller installation type via said installation-type detector;

determining which of said mode settings has been selected  
20 via said microprocessor; and

generating sound navigational signals via said horn in accordance with said selected mode.

25 42. The method of claim 41, further comprising a step of performing a self test is implemented after said step of initializing of said microprocessor and prior to said step of determining controlling installation type.

30 43. The method of claim 41, further comprising a step of determining whether said controller is cooperating with a vessel

under sail or a vessel under power is implemented after said step of determining which of said mode settings has been selected and prior to said step of generating sound navigational signals.

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44. The method of claim 41, further comprising a step of providing a pre-signal warning to be implemented after said step of determining which of said mode settings has been selected and prior to said step of generating sound navigational signals.

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45. The method of claim 44, wherein said pre-signal warning is an audio signal, a visual signal or a combination thereof.

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46. The method of claim 41, further comprising a step of providing a delay for a base time period following said step of generating sound navigational signals.

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47. The method of claim 46, further comprising supplying a random time delay by a random number generator and adding to said base time period.

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48. The method of claim 47, further comprising a step of repeating said sound navigational signal in accordance with said mode selector to be implemented after said step of adding said random time delay to said base time period.